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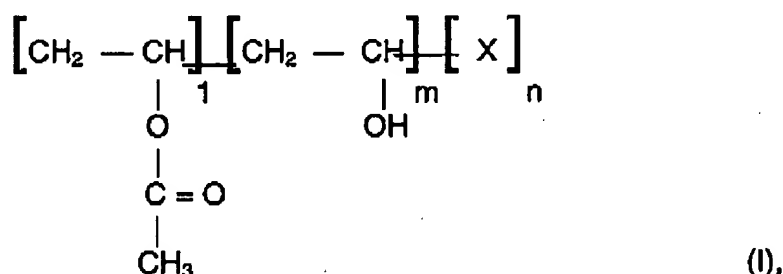
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(C) a vanadium compound; and

(D) a compound containing at least one element selected from the group consisting of Zr, Ti, and Si.

36. (Amended) A hydrophilization agent according to claim 1 wherein component (A) comprises at least one member selected from the group consisting of polyvinyl alcohol polymers of general formula I



reaction products of the polyvinyl alcohol polymers of general formula I with diketenes, and mixtures thereof, wherein X is a copolymerizing unit other than vinyl acetate and vinyl alcohol, l is the copolymerizing number of moles of a vinyl acetate copolymerizing unit, m is the copolymerizing number of moles of a vinyl alcohol polymerizing unit, and n is the copolymerizing number of moles of copolymerizing unit X, l and n may be zero and wherein copolymerizing unit X has a copolymerizing mole ratio n/l+m+n from 0 to 0.3.

REMARKS

Claims 1 and 10-34 were pending in the above-captioned matter. By this amendment, claims 1, 10, 25 and 31 have been amended, and claims 35 and 36 have been added. After entry of this amendment, claims 1 and 10-36 are pending, claims 1, 25, 31 and 35 being independent. Support for the amendment is found in the specification at page 3, line 19; page 6, lines 20-25; and the Examples. No new matter has been added. Remarks made herein are based on the claims as amended hereby.

Claims 10 and 20-21 have been rejected under 35 USC §112, second paragraph, as being indefinite. The Examiner concluded that the Markush group recited in claim 10 is

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unclear. Applicants have amended claim 10 to obviate the rejection and to clarify that the Markush group includes substances produced where diketenes are reacted with the polyvinyl alcohol polymers of general formula I, as well as mixtures of these substances with polyvinyl alcohol polymers of general formula I. Support for this amendment is found in the substitute specification at page 15, line 29-35. Applicants respectfully request withdrawal of the 35 USC §112, second paragraph rejection.

Claims 1 and 10-34 stand rejected under 35 USC §103 as being unpatentable over U.S. Patent No. 4,954,372 to Sako et al. (the '372 patent) in view of Japanese Patent Document No. JP 06-116527 (JP '527).

In the Official Action of October 3, 2003, the Examiner admitted that the '372 patent fails to teach or suggest the combination of vanadium with titanium, zirconium or silicon, and that the reference also fails to teach the claimed compositional ranges. To remedy this and other deficiencies in the '372 patent, the Examiner cited JP '527 alleging: "JP '527 teaches that the combination of vanadium with titanium (fluoride), zirconium (fluoride) or silicon (silica or fluoride) work together to provide the hydrophilic coating with excellent endurance and corrosion resistance". See Official Action pages 4-5.

In order to support a rejection under 35 U.S.C. §103, the Office must establish that there is some suggestion, either in the reference or in the relevant art, of how to modify what is disclosed to arrive at the claimed invention. In addition, "[s]omething in the prior art as a whole must suggest the desirability, and, thus, the obviousness, of making" the modification to the art suggested by the Examiner. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 U.S.P.Q. 2d (BNA) 1434, 1438 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988). If the prior art fails to provide this necessary teaching, suggestion, or incentive supporting the Examiner's suggested modification, the rejection based upon this suggested modification is error and must be reversed. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d (BNA) 1566 (Fed. Cir. 1990).

It is Applicants' position that the Examiner has failed to establish a *prima facie* case of obviousness and that this rejection should be withdrawn. The Examiner has used

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applicants' disclosure as a blueprint to reconstruct the claimed invention from isolated pieces of the prior art, which is impermissible hindsight. See *Grain Processing Corp. v. American Maise-Prods. Co.*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

The '372 patent teaches a hydrophilicizing composition that may contain inorganic crosslinking agents including one of chromium and seventy-five (75) other metal ions. See *Table I of '372 patent*. Each of these metal ions may be part of a variety of compounds, increasing the number of potential agents several times over, to more than 150. There is no mention of vanadium in the entirety of the '372 patent, except as part of the laundry list of Table I. The text of the '372 patent teaches away from selecting a vanadium compound from among the more than 150 candidates by reciting preferred elements: Cr, Ti, Al, and Zr. The Examples use chromium cross crosslinking agents in all but one of the experiments, Examples 3 & 4 and Comparative Example 2 use zirconium ammonium carbonate over a chromated base material. Applicants' invention is directed to chromium free products. There is not a single example in the '372 patent that produces a chromium free product and the '372 patent fails to teach or suggest that the single chromium free agent zirconium ammonium carbonate can be used without the chromium add-on.

JP '572 is directed to a completely different hydrophilicizing composition requiring the presence of silicon, preferably as silicon dioxide. See, *paragraph 15 of JP '572*. Additional components include only a single acrylic polymer and vanadium. Fluoric acid or a fusible fluoric acid salt is taught as an agent to partially dissolve the base material at the surface to form aluminum fluoride. The only mention of Zr or Ti is as the cation for the fluorine. There is no teaching or suggestion to use Zr or Ti for its beneficial properties nor is there any teaching to combine Zr and Ti as crosslinking agent with V. None of the Examples teach the use of Zr or Ti.

The Office must establish that there is some suggestion, either in the reference or in the relevant art, of how and why to modify what is disclosed to arrive at the claimed invention. The Office cannot pick and choose pieces of references using Applicants'

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disclosure as a roadmap, while ignoring the other teachings of the references, in order to achieve Applicants invention. There is no teaching or suggestion in either reference of how to modify the '372 patent to achieve Applicants' invention as claimed. Accordingly, the rejection under 35 USC §103 should be withdrawn.

CONCLUSION

Applicant requests reconsideration in view of the amendments and remarks contained herein, a copy of the claims showing the amendments made is attached hereto as an appendix. Applicant submits that the claims are in condition for allowance and a notice to that effect is respectfully requested. Should the Examiner have any questions regarding this paper, please contact the undersigned.

Respectfully submitted,



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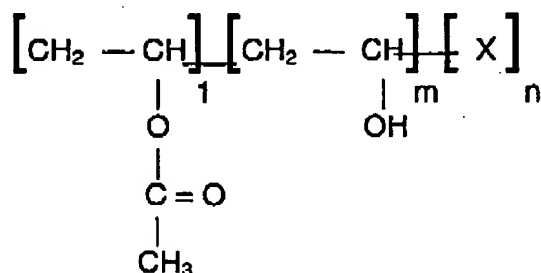
APPENDIX

1. A hydrophilization agent for metallic material, comprising:

- (A) a hydrophilic polymer having at least one non-ionic functional group selected from the group consisting of primary amide groups, secondary amide groups, tertiary amide groups, hydroxyl groups and polyoxyalkylene groups;
- (B) a hydrophilic polymer having at least one ionic functional group selected from the group consisting of sulfonic acid groups, phosphonic acid groups, carboxyl groups, primary amino groups, secondary amino groups, tertiary amino groups and quaternary ammonium groups;
- (C) a vanadium compound; and
- (D) a compound containing at least one element selected from the group consisting of [Zr, Ti, and Si] Zr and Ti;

wherein said agent is free of chromium.

10. (Amended) A hydrophilization agent according to claim 1 wherein component (A) comprises at least one member selected from the group consisting of polyvinyl alcohol polymers of general formula I



(I)₁

[and] reaction products of the polyvinyl alcohol polymers of general formula I with diketenes, and mixtures thereof, wherein X is a copolymerizing unit other than vinyl acetate and vinyl alcohol, 1 is the copolymerizing number of moles of a vinyl acetate copolymerizing unit, m is the copolymerizing number of moles of a vinyl alcohol

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polymerizing unit, and n is the copolymerizing number of moles of copolymerizing unit X, and l and n may be zero.

25. (Amended) A hydrophilization agent obtained by combining with a solvent the following components:

- (A) a hydrophilic polymer having at least one functional group selected from the group consisting of primary amide groups, secondary amide groups, tertiary amide groups, hydroxyl groups and polyoxyalkylene groups;
- (B) a hydrophilic polymer having at least one ionic functional group selected from the group consisting of sulfonic acid groups, phosphonic acid groups, carboxyl groups, primary amino groups, secondary amino groups, tertiary amino groups and quaternary ammonium groups;
- (C) a vanadium compound; and
- (D) a compound containing at least one element selected from the group consisting of [Zr, Ti, and Si] Zr and Ti;

wherein said agent is free of chromium.

31. (Amended) A metallic material having a surface with a hydrophilic film thereon, said hydrophilic film comprising:

- (A) a hydrophilic polymer having at least one functional group selected from the group consisting of primary amide groups, secondary amide groups, tertiary amide groups, hydroxyl groups and polyoxyalkylene groups;
- (B) a hydrophilic polymer having at least one ionic functional group selected from the group consisting of sulfonic acid groups, phosphonic acid groups, carboxyl groups, primary amino groups, secondary amino groups, tertiary amino groups and quaternary ammonium groups;
- (C) a vanadium compound; and
- (D) a compound containing at least one element selected from the group consisting of [Zr, Ti, and Si] Zr and Ti;

wherein said agent is free of chromium.